Rule DAS113: WORST SEEKING WAS PROBABLY CAUSED BY INDEPENDENT APPLICATIONS

Finding: CPExpert determined that seeking was the major cause of delay in DASD response for the device during the measurement interval with the worst I/O response. More than half of the I/O queuing to the device was explained using a queuing model. Consequently, CPExpert believes that the seeking during this interval probably was caused by independent applications.

Impact: This finding may have a MEDIUM IMPACT or HIGH IMPACT on the performance of the device. If the finding is correct, and the independent applications are referencing different files, then the corrective actions could result in significant performance improvements.

Logic flow: The following rules cause this rule to be invoked:

DAS100: Volume with the worst overall performance
DAS110: Seeking was the major cause of response delay

Discussion: CPExpert uses a M/M/1 queuing model to calculate an estimated queue time for the measurement interval with the worst I/O response for the device being analyzed. The underlying assumptions of the model are exponential interarrival times, exponential service distributions, and an infinite population. If device activity occurs in this way, the queuing model can predict the expected queuing delays.

If the queuing delay as measured by RMF is significantly different from the estimated delay from the model, it would be clear that the activity did not occur in a random fashion, and most likely the cause of the difference would be that the interarrival times are not randomly distributed.

However, the I/O delay to this pack was fairly well explained by the queuing model. More than half of the I/O queuing delay was explained by the model, for a majority of the measurement intervals. This indicates that the activity was mostly random, as would be expected from independent applications accessing files on the pack.

Suggestion: The most improvement for this pack would likely result from (1) separating the files to different packs, (2) rearranging the files within the pack, (3) tuning the file structure (for example, compressing a shared partitioned data set (PDS), (4) scheduling the applications to avoid contention, or (5) examining the applications doing most of the I/O.

The actions to be taken when this rule is produced are the same associated with RULE DAS111. Please refer to that rule for further suggestions.